UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trad mark Offic
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/376,774	08/17/99	FUNG	Y D6087

HM12/0409

DR BENJAMIN ADLER
MCGREGOR & ADLER LLP
8011 CANDLE LANE
HOUSTON TX 77071

EXAMINER	
ZARA,J	
ART UNIT	PAPER NUMBER
1635	8

DATE MAILED: 04/09/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

File

Office Action Summary

Application No.	Applicant(s)
09/376,774	Fung et al.
Examiner	**Group Art Unit**
Zara, Jan	1635

☒ Responsive to communication(s) filed on *Jan 25, 2001*

☒ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-28* is/are pending in the applicat

Of the above, claim(s) *4-28* is/are withdrawn from consideration

☒ Claim(s) *1* is/are allowed.

☒ Claim(s) *2 and 3* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

File

DETAILED ACTION

This Office action is in response to the communication filed January 25, 2001, Paper No. 7.

Claims 1-3 are pending in the instant application.

Allowable Subject Matter

Claim 1 is allowed.

Response to Amendment

Withdrawn Rejections

Rejection of claims 1-3 under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements, is withdrawn in light of Applicants' amendments filed January 25, 2001, Paper No. 7.

Rejection of claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over Reeves et al and Cigan et al, the combination in view of Voellmy et al and further in view of Szaframski et al is withdrawn in light of Applicants' remarks filed January 25, 2001, Paper No. 7.

Maintained Rejections

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2 and 3 are rejected under 35 U.S.C. 112, first paragraph, for the reasons set forth in the Office action mailed October 26, 2000, Paper No. 6.

Response to Arguments

Applicant's arguments filed January 25, 2001 have been fully considered but they are not persuasive. Applicants argue that the claims are enabled by the instant specification, which claims are drawn to localized, temporal expression of therapeutic genes in an area of the body of an organism following the administration and subsequent induction with heat or light of the vector pDATH-X further comprising a therapeutic gene under the control of tetp-CMV promoter.

Contrary to Applicants' assumptions, there remains a high level of unpredictability in the field of gene therapy, and especially regarding the inducible expression of therapeutic genes in an organism as claimed in the instant application. Addressing unpredictability in gene therapy, Crooke writes in his previously cited article in paragraph 4 of page 3: ...it is obvious that conclusions about in vitro uptake must be very carefully made and generalizations are virtually impossible.." And in the following paragraph on page 3, Crooke writes: "Finally, extrapolations from in vitro uptake studies to predictions about in vivo pharmacokinetic behaviors are entirely inappropriate and, in fact, there are now several lines of evidence in animals and man (that) demonstrate that, even after careful consideration of all in vitro uptake data, one cannot predict in vivo pharmacokinetics of the compounds based on in vitro studies." (See Crooke, Antisense Research and Application; Chapter 1, provided in the Office action mailed October 24, 2000, Paper No. 6). In order to be enabled for the claimed invention, evidence must be provided which illustrates that the delivery agent claimed is effective in functionally and appropriately delivering a desired gene to an organism and, if the agents to be

delivered are described as therapeutic agents, then evidence must also be provided whereby therapeutic effects have been provided using the delivery agent claimed.

Applicants argue further that targeting specificity in vivo is not a problem of the instant invention since gene expression will remain inactive in the organism until light or heat is administered to the organism following administration of the vector.

No data or evidence has been provided in the instant application, however, for the successful delivery and appropriate expression of a genetic therapeutic agent to an organism whereby short temporal expression has been induced in appropriate tissues of target cells in the presence of heat or light, and further whereby therapy effects have been provided. The examples provided in the instant specification are not representative of the successful delivery and induced expression of nucleic acids in an organism comprising the administration and subsequent induction of genes within the pDATH-X vector, nor are these examples representative of providing therapeutic effects to an organism using the compositions claimed.

Applicants also argue that, although the pharmacokinetics of tetracycline vary within individual organisms as well as within tissues of a given individual, cells that receive the vector should be able to express the heterologous gene over a broad range of tetracycline concentrations without undue experimentation.

The instant invention is comprised of a number of different components for the delivery and orchestrated expression of genes in an organism, which components involve the induced expression of genes upon exposure to light, heat and antibiotics such as tetracycline. Evidence

must be provided in the instant application whereby the successful orchestration of the various means of induction has been accomplished in an organism such that the desired genes are expressed in an appropriate manner in appropriate target cells. Such evidence includes the effective and appropriate induction of gene expression by tetracycline, whereby effective and appropriate concentrations of both the gene(s) to be expressed and the antibiotic which induces their expression have been delivered to appropriate tissues or target cells in an organism. Enablement for the scope claimed is not provided by the in vitro data taught in the instant specification.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Certain papers related to this application may be submitted to Art Unit 1635 by facsimile transmission. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 C.F.R. § 1.6(d)). The official fax telephone numbers for the Group are (703) 308-4242 and (703) 305-3014. NOTE: If Applicant *does* submit a paper by fax, the original signed copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jane Zara** whose telephone number is **(703) 306-5820.** If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John LeGuyader, can be reached on (703) 308-0447. Any inquiry regarding this application should be directed to the patent analyst, Katrina Turner, whose telephone number is (703) 305-3413. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

JZ

April 9, 2001

JOHN L. LeGUYADER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600